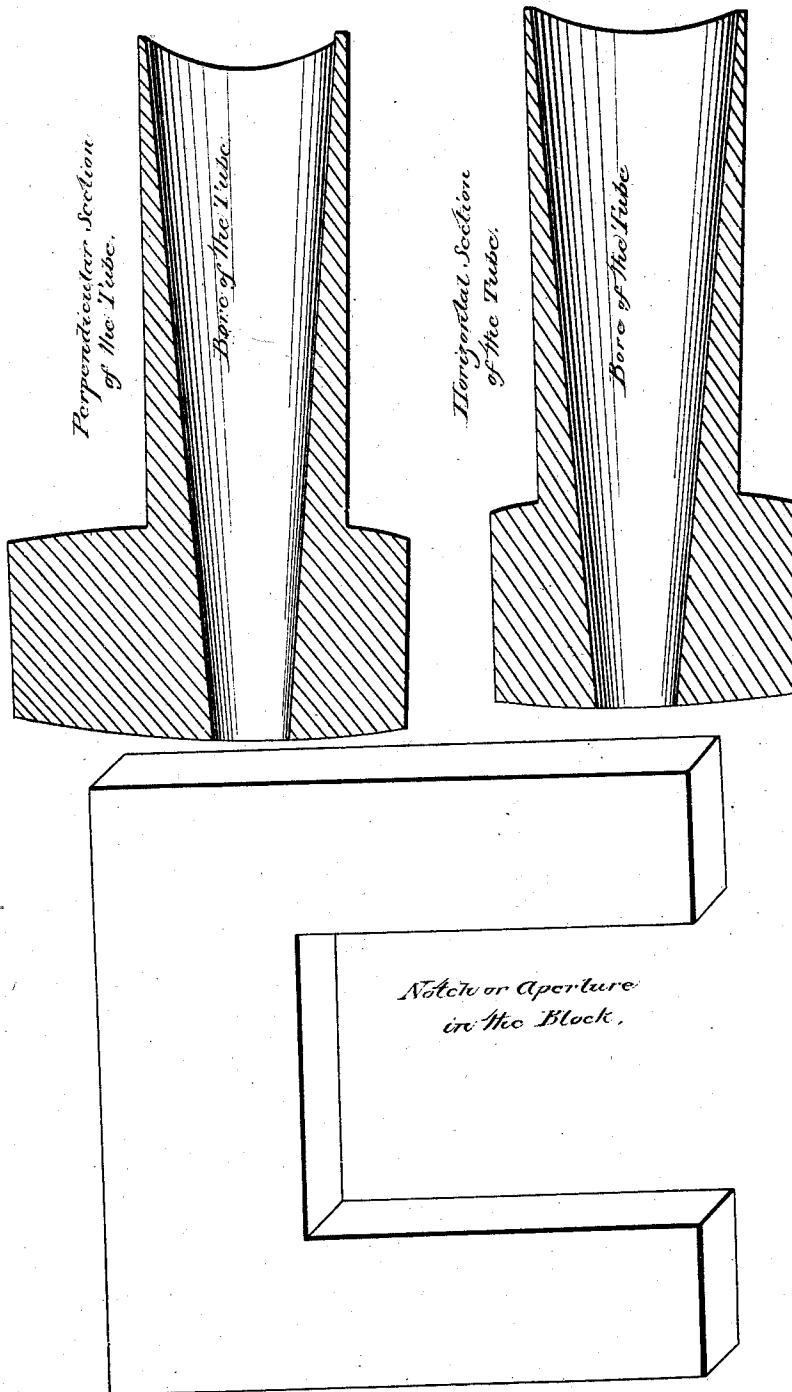


*I. Wilder.*

*Furnace and Forge for Blacksmiths.*

*N<sup>o</sup> 645*

*Patented Mar. 17, 1838.*



# UNITED STATES PATENT OFFICE.

LUKE WILDER, OF LEOMINSTER, MASSACHUSETTS.

## BACK FOR FORGES AND FURNACES.

Specification of Letters Patent No. 645, dated March 17, 1838.

*To all whom it may concern:*

Be it known that I, LUKE WILDER, of Leominster, in the county of Worcester and State of Massachusetts, have made an Improvement in the Construction of Blacksmiths' Forges and of Furnaces Where the Bellows or Wind is Employed; and I do hereby declare that the following is a full and exact description.

10 The first part of the aforesaid improvement consists of a cast iron back to be placed in the brick work of the forge or furnace aforesaid at the place where the heat is to be raised by the blast of air. The  
15 size of the back, as I call it, must of course vary according to the business and kind of work that is to be done. For a common blacksmith's forge, the back should be about six inches square and two inches thick, the  
20 face of which will stand nearly even with the brick work of the forge or furnace. In the back there is a cut or notch or square aperture from the lower edge upward into the same about three inches wide and four  
25 inches high, in and through which notch or aperture the end of the tube hereafter described is inserted and passes. Said notch or aperture is not of equal size on the front and back sides of the back, but flares so as  
30 to be larger on the back side or the side toward the brick work and is so made to allow a little play or motion of said tube. The tube therefore when placed in the notch or aperture nearly fills the same in front or at  
35 the surface of the back next the fire, but behind does not fill up the aperture by about one quarter of an inch. The reason for this construction is, that the tube, when it is desired to take it out, may be struck and moved  
40 a little so as to break the borax or cement which may attach to the tube and back by use and is apt to join the parts firmly together. The size and dimensions of the back here stated are such as will answer well for a  
45 common blacksmith's forge. For furnace and large forges the back and the aperture should be proportionally larger than the size above specified. The other or remaining part of said improvement is the tube (so  
50 called) which when placed lies horizontally with its end in the said notch or aperture and projects a little beyond the front surface of the back into the fire. In the tube which is hollow the bellows or wind pipe is  
55 inserted. The tube is of cast iron, and for a common blacksmith's forge seven inches is a

suitable length for the tube. For furnaces and larger forges it may be longer. It is a single cast iron hollow tube. But in description it may be regarded as consisting of  
60 two parts—viz. the front part which is four inches by three inches which gives the dimensions of the front or fire end of the tube and is the end which fills the notch or aperture in the back, as above described. This  
65 part is about two and one half inches of the seven which make the length fit. This part is square formed and larger than the other part of the tube. Said other part of the tube in a common blacksmith's forge, as above  
70 said, should be about four and one half inches long, may be rounded or square, or otherwise, and its thickness is not important, as it does not come to the fire, but should be strong and substantial. The bore of the  
75 tube should be tapering and the end next the bellows large enough for the easy insertion of the bellows pipe. For a common blacksmith's forge three of these tubes will be convenient. For some uses a greater  
80 number might be useful. They differ in no respect except in the diameter of the bore next to the fire. For common uses of the blacksmith's forge three suitable sizes are here given—viz: No. 1, diameter of the bore  
85 at the fire end of the tube five eighths of an inch; No. 2, said diameter seven eighths of an inch; No. 3, said diameter may be one inch. The back and tube may rest on the brick work, or a piece of cast iron of a suitable  
90 size may be placed as the foundation, and the latter mode is believed to be the best. The advantages to be expected from the improvement aforesaid may be briefly  
95 stated. The cast iron back will stand the fire in a common blacksmith's forge from three to five years. The principal wear and waste is on the tube which is easily and cheaply replaced by a new one. When it is burnt out another may be substituted. Upon the common construction, it is necessary frequently  
100 to repair the brick work of the forge and at a considerable annual expense. One benefit therefore is that the repairs can be made with little delay and at a very moderate expense, probably for twenty five per cent of  
105 the cost upon the old construction. Another benefit is that the fire may be varied according to the kind of work to be done, by using a tube of a different size, so that the wind  
110 varies, and the heat is less and the quantity of fuel is less when the smaller tube is em-

ployed. It may be unnecessary to add, that although the sizes, and dimensions above stated, are suitable for a common black-smith's forge, yet that they are not the most  
5 material or the essential part of the improvement for which a patent is here claimed, but

The back and the tubes and the form thereof, their adaptation to each other and

their uses as aforesaid are the improvements 10 for which the inventor claims originality and seeks to secure the benefit of Letters Patent.

Leominster, Mass., Feb. 9, 1838.

LUKE WILDER.

Witnesses:

JOS. G. KENDALL,  
JOHN GARDNER.